

UNPRECEDENTED FOREST
TRANSFORMATION IS
UNDERWAY

FORESTS HAVE KEY ROLE in
CONFRONTING CLIMATE
CHANGE







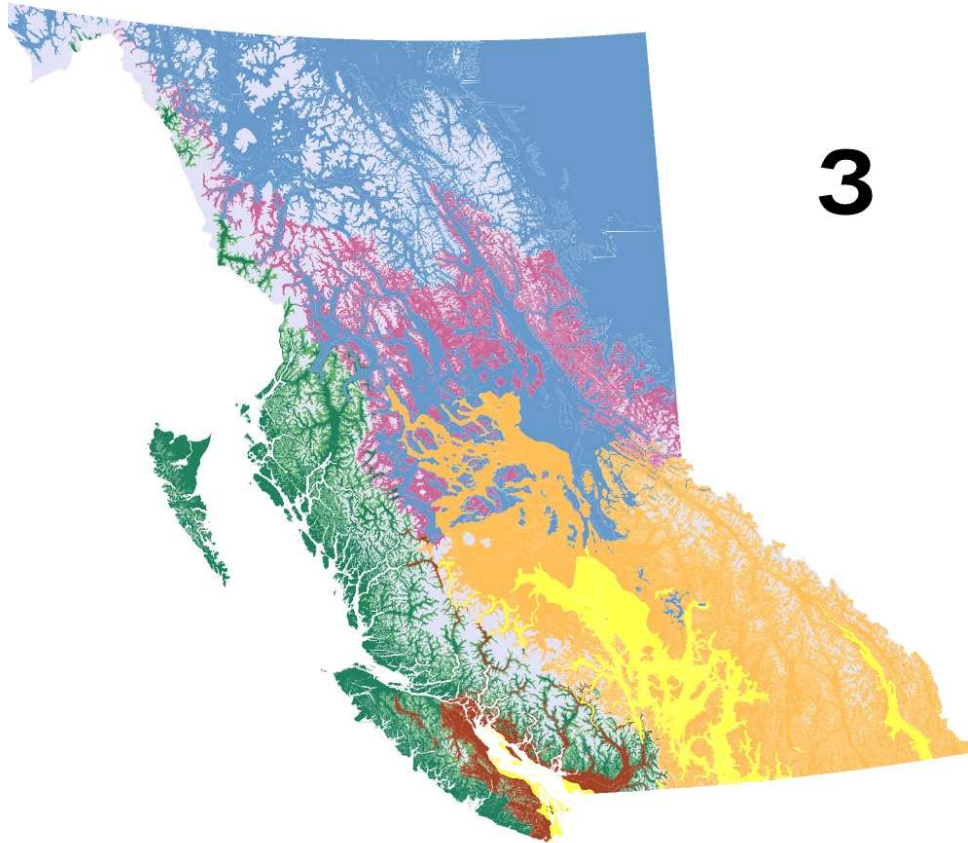








Vegetation (BGZ types/combinations) for "9000 BP" map
(Draft)

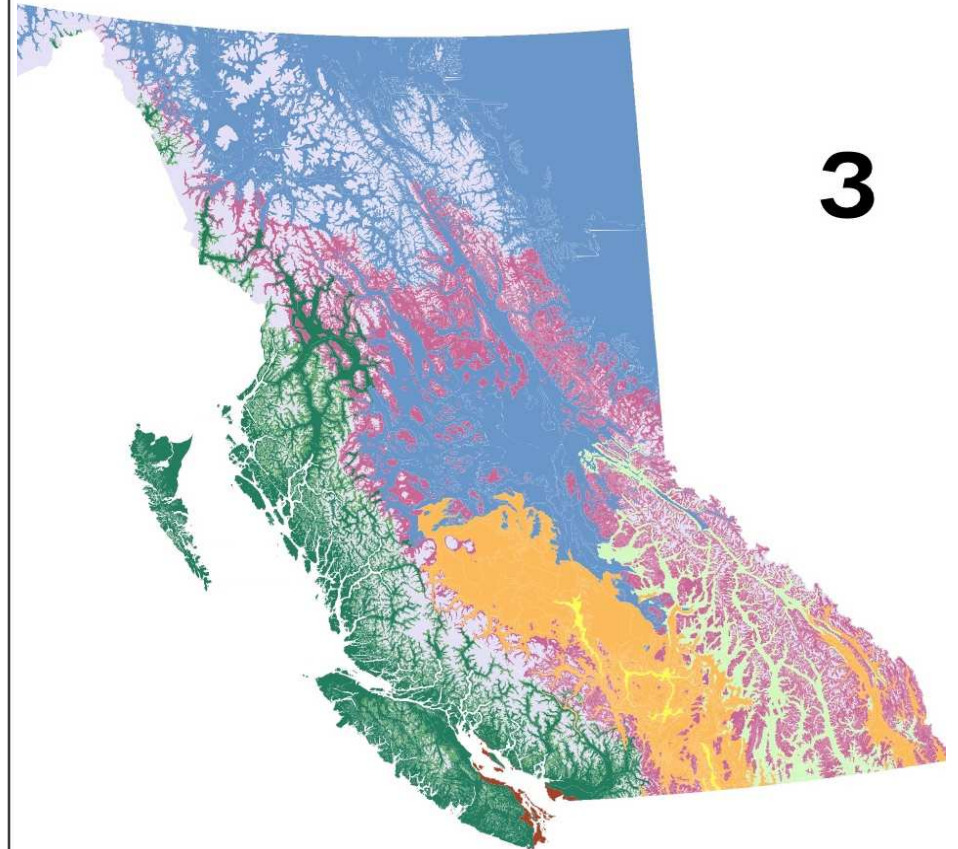


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- | | |
|--|--|
|  Alpine Tundra (AT9) |  Dry Interior Forest (DIF9) |
|  Northern Spruce Forests (NSF9) |  Coastal Douglas Fir (CDF9) |
|  Engelmann Spruce Subalpine Fir (ESSF9) |  Mountain Hemlock (MH9) |
|  Grasslands (BG9) |  Wet Coast Forest (WCF9) |

Prepared by: UVic Geog. Dept., Spatial Sciences Laboratories (MS)
February 18, 2007

Vegetation (BGZ types/combinations) for modern map (3000 BP)
(Draft)



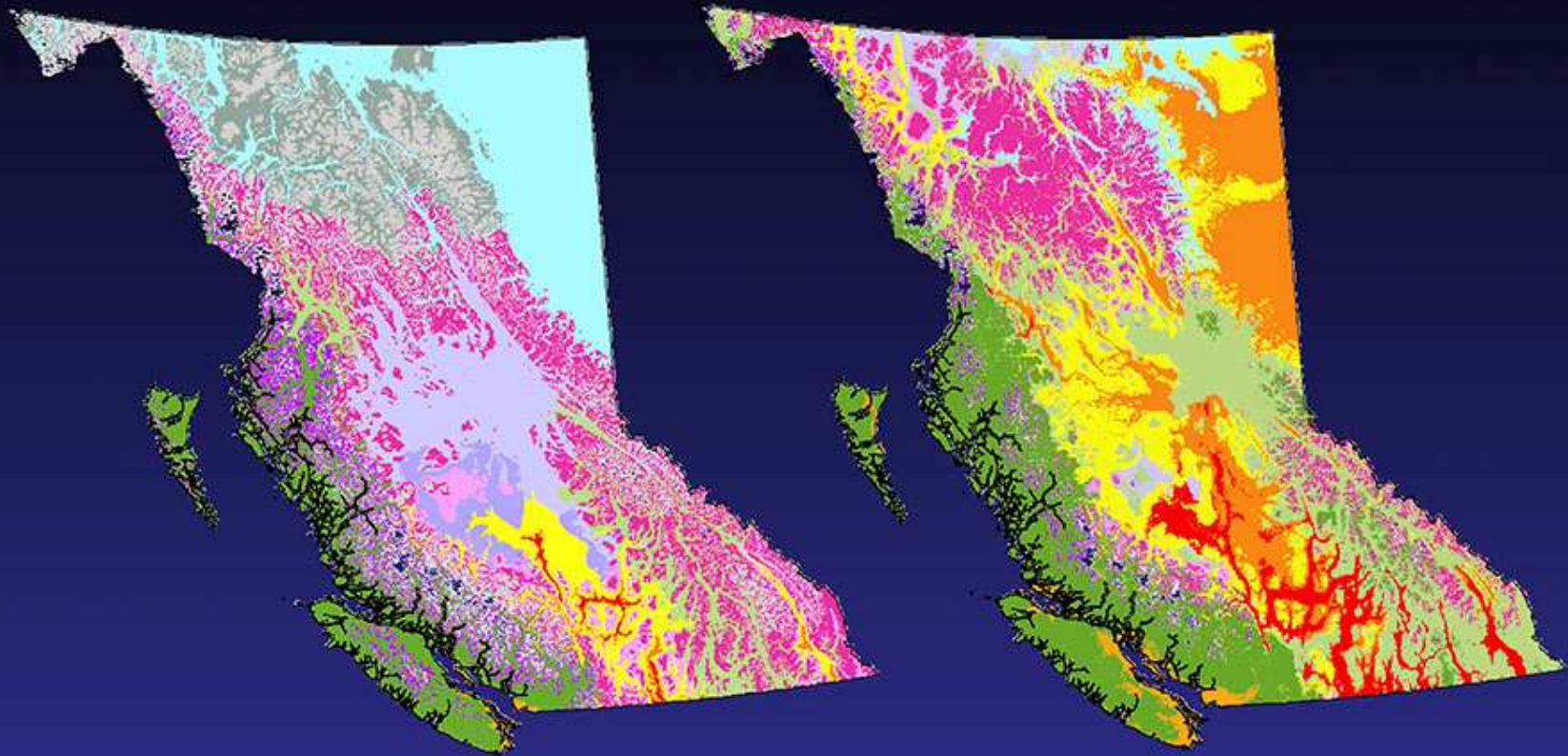
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- | | |
|--|---|
|  Alpine Tundra (AT3) |  Coastal Douglas Fir (CDF3) |
|  Northern Spruce Forests (NSF3) |  Interior Coastal Hemlock (ICH3) |
|  Engelmann Spruce Subalpine Fir (ESSF3) |  Mountain Hemlock (MH3) |
|  Grasslands (BG3) |  Wet Coast Forest (WCF3) |
|  Dry Interior Forest (DIF3) | |

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BEC zone climate envelope (2020s, 2050s, 2080s)



Current

Predicted

IPCC 4:

- Natural net CO₂ uptake likely to decline post 2050
- Forest degradation and conversion contributes about 20% of climate change

Two Strategies

- **Prepare for opportunities and challenges:** realistic rate of emissions reduction inadequate to prevent major change
- **Reduce CO2 emissions markedly:** otherwise risk catastrophic transformation, a collective and individual responsibility

Carbon Stewardship

Adaptation and Mitigation

Balanced values for the future

- **Living carbon:** organisms and ecosystems: sustain humans, ecological processes; future insurance, scrub CO₂
- **Dead carbon:** organic matter in soils, wastes; sustains living carbon, stored carbon, energy source
- **Ancient Carbon:** fossil fuels; ready and reliable energy source; predominant cause of climate change

A diagram on a blue background showing four carbon reservoirs. 'LIVING CARBON' is in a yellow oval at the top. 'FORESTS' is in a cyan square in the center. 'ANCIENT CARBON' is in a yellow oval at the bottom left. 'DEAD CARBON' is in a yellow oval at the bottom right. The 'FORESTS' box overlaps the bottom of the 'LIVING CARBON' oval and the top of the 'DEAD CARBON' oval.

LIVING
CARBON

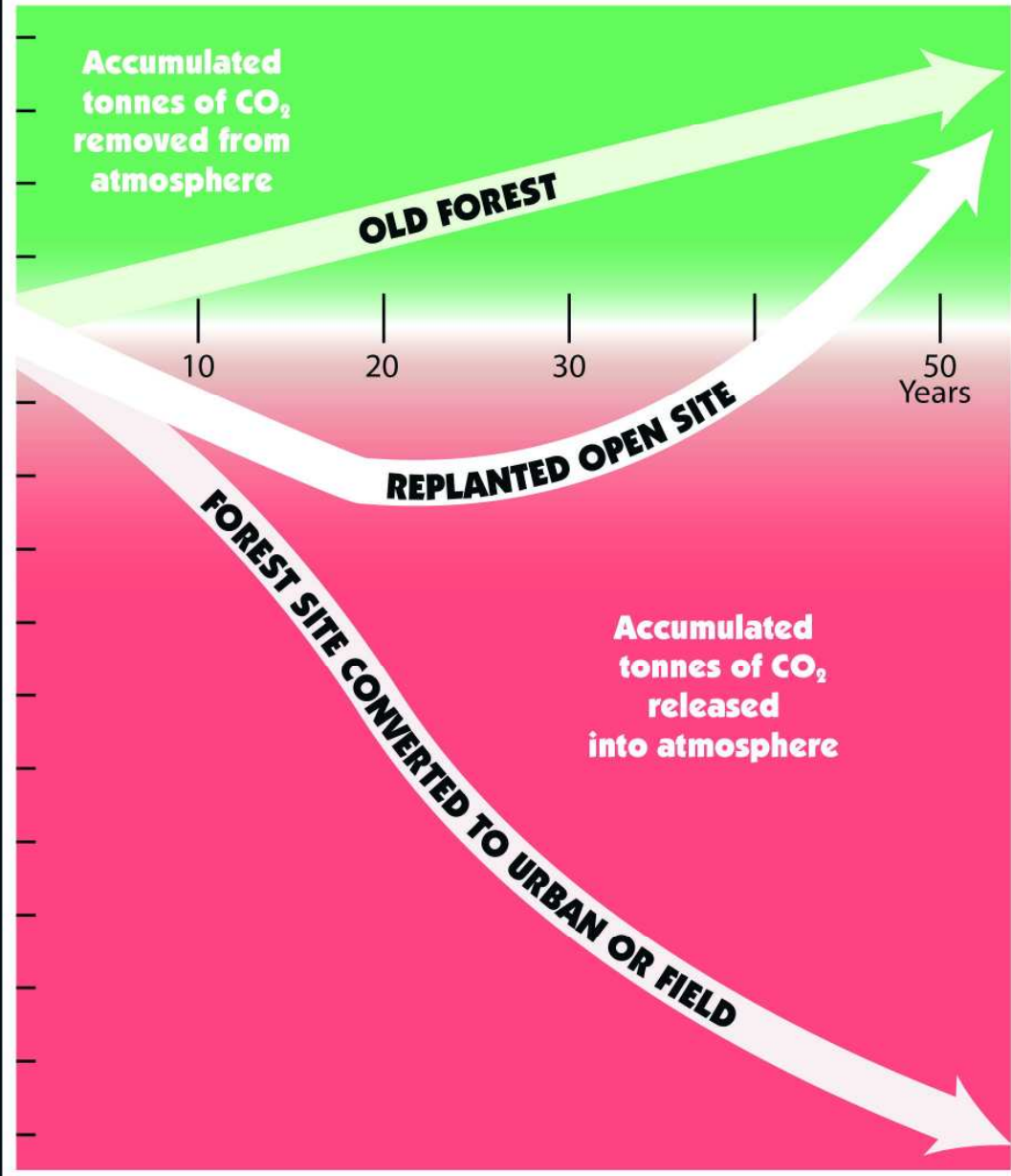
FORESTS

ANCIENT
CARBON

DEAD
CARBON

Accumulated Totals

Tonnes of CO₂ Removed or Released



Avoiding uncontrolled Climate Change !!

- All forest carbon sinks must be maintained an increased
- Forest and other ecosystems must return to optimum primary productivity
- Forests must be as resilient as possible to maintain ecological integrity
- Forests provide high adaptation value

Forest Strategies

- Anticipate impacts with sensitivity maps
- Understand how forests work (i.e. soil processes)
- Manage on landscape and stand scale
- Experiment with mixes and techniques
- Limit major forest disturbance
- Maintain resilience (avoid invasive species)
- Strive for multiple forest benefits
- Encourage and train thinkers and practitioners

CONSERVATION AND RESTORATION

- All high carbon forests must be conserved
 - Save Old Growth!!
 - Prevents further decline of major sinks
 - Preventing further emissions today better than hoped for sequestration in decades
- Forestry practices must not deplete carbon sinks and should ideally add to them
- All potential forest sites must be restored
- Management decisions must be made on real full-cost accounting of carbon values

The green carbon trap

- All avoidable CO₂ emissions whether from fossil fuels or green fuels must be eliminated
- There are no green CO₂ molecules they all warm the atmosphere
- Forests cannot become human energy slaves (bio-energy)
- Their carbon sink, sequestration and adaptation role are much more important

Fires do not release huge amounts of carbon



